ECONOMIC SUSTAINABILITY PLAN FOR THE SACRAMENTO-SAN JOAQUIN DELTA

August 9, 2011 Public Draft

Please send comments to: espcomments@pacific.edu

Economic Sustainability Plan Context

- The 2009 Delta Reform Act
  - Charged the Delta Protection Commission with developing the Economic Sustainability Plan (ESP).
  - Created the Delta Stewardship Council and the Delta Conservancy.
  - The ESP is an input for the Delta Stewardship Council to consider in developing the Delta Plan.
- The full public review draft of the ESP is on-line.
  - http://www.delta.ca.gov/
  - Comments and feedback are appreciated.

ESP Context

- To be incorporated in the DSC's Delta Plan, the ESP must support the coequal goals of "providing a more reliable water supply for California and protecting, restoring and enhancing the Delta ecosystem."
- Legislation also states that the coequal goals "shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place."

ESP Goals

- Identify and measure key components of the Delta economy that are directly connected and dependent on the natural resources of the Delta.
- Evaluate trends and future conditions, and develop strategies to enhance and sustain the Delta economy over time.
- Evaluate the impact of various proposals for the Delta on regional economic sustainability.
- Recommend actions and strategies that support economic sustainability and are consistent with the co-equal goals.

ESP Limitations

The ESP is focused on permanent, long-run actions, and their impact on the economic sustainability of the Delta. Thus, the ESP does not:

1. Assess short-run economic impacts of proposed capital spending: construction on levees, water conveyance facilities, habitat, etc.
2. Comprehensively analyze the costs and benefits of all water conveyance options.

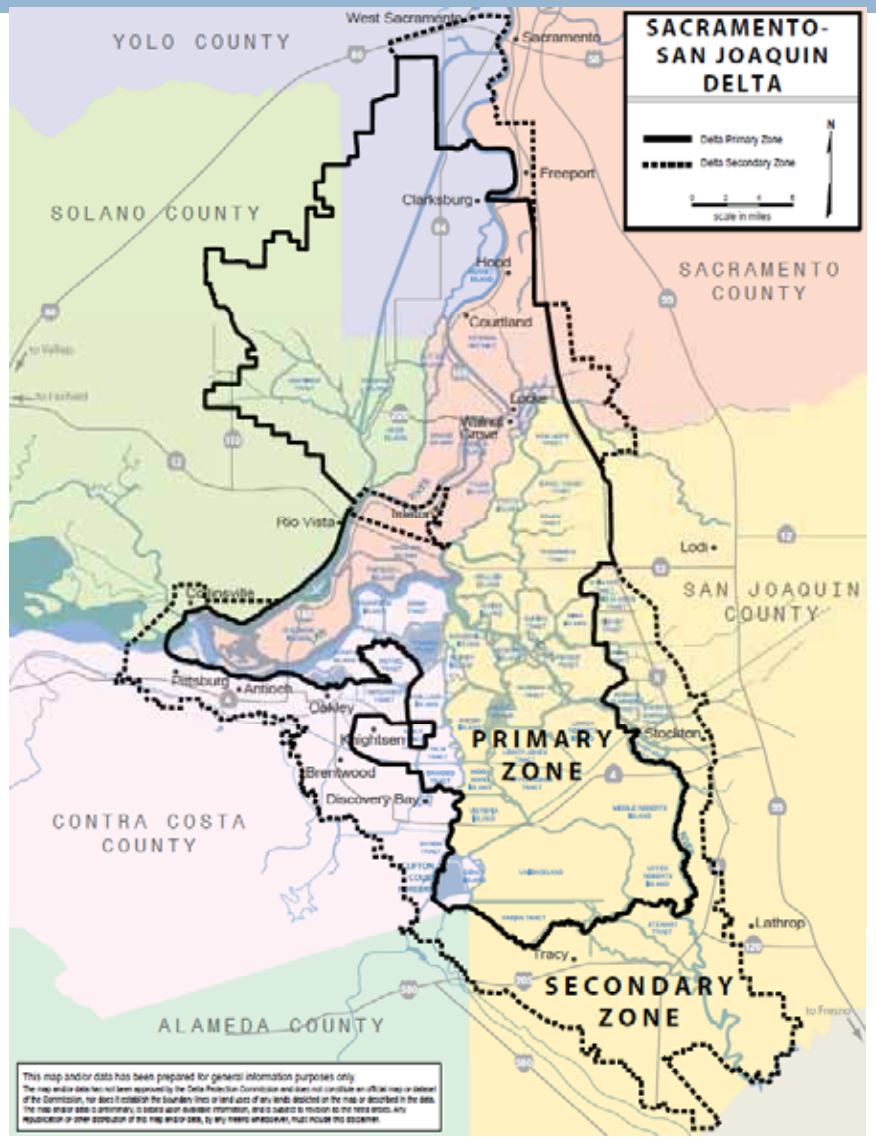
Primary and Secondary Zones of the Sacramento-San Joaquin Delta

Population Trends, 1990 - 2010

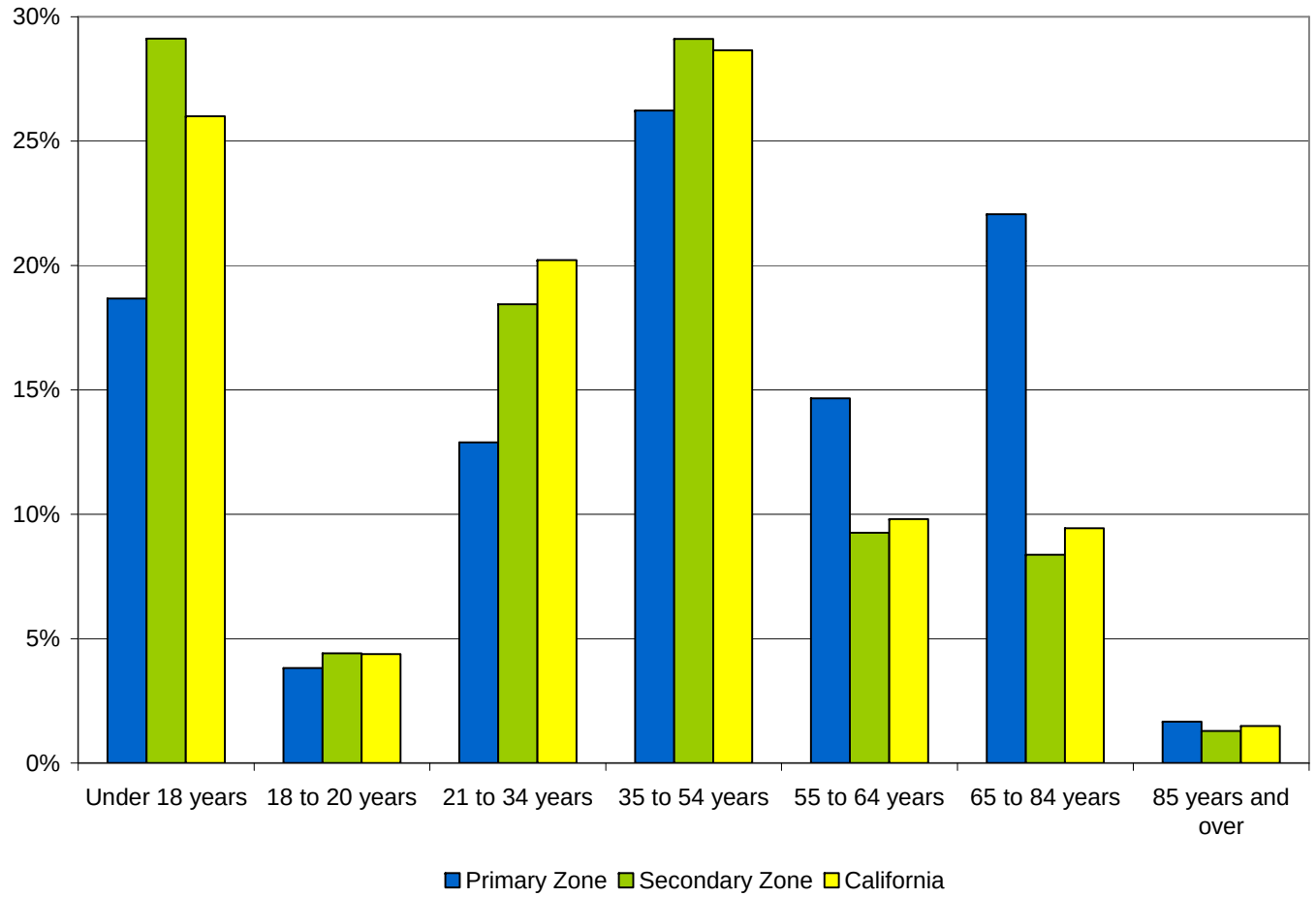
Primary Zone: steady around 12,000

Secondary Zone:
- 360,000 in 1990
- 560,000 in 2010
- 56% growth, annual 2.2% growth
- 20% of 5 Delta county growth
- Majority of population is in Contra Costa and San Joaquin Counties

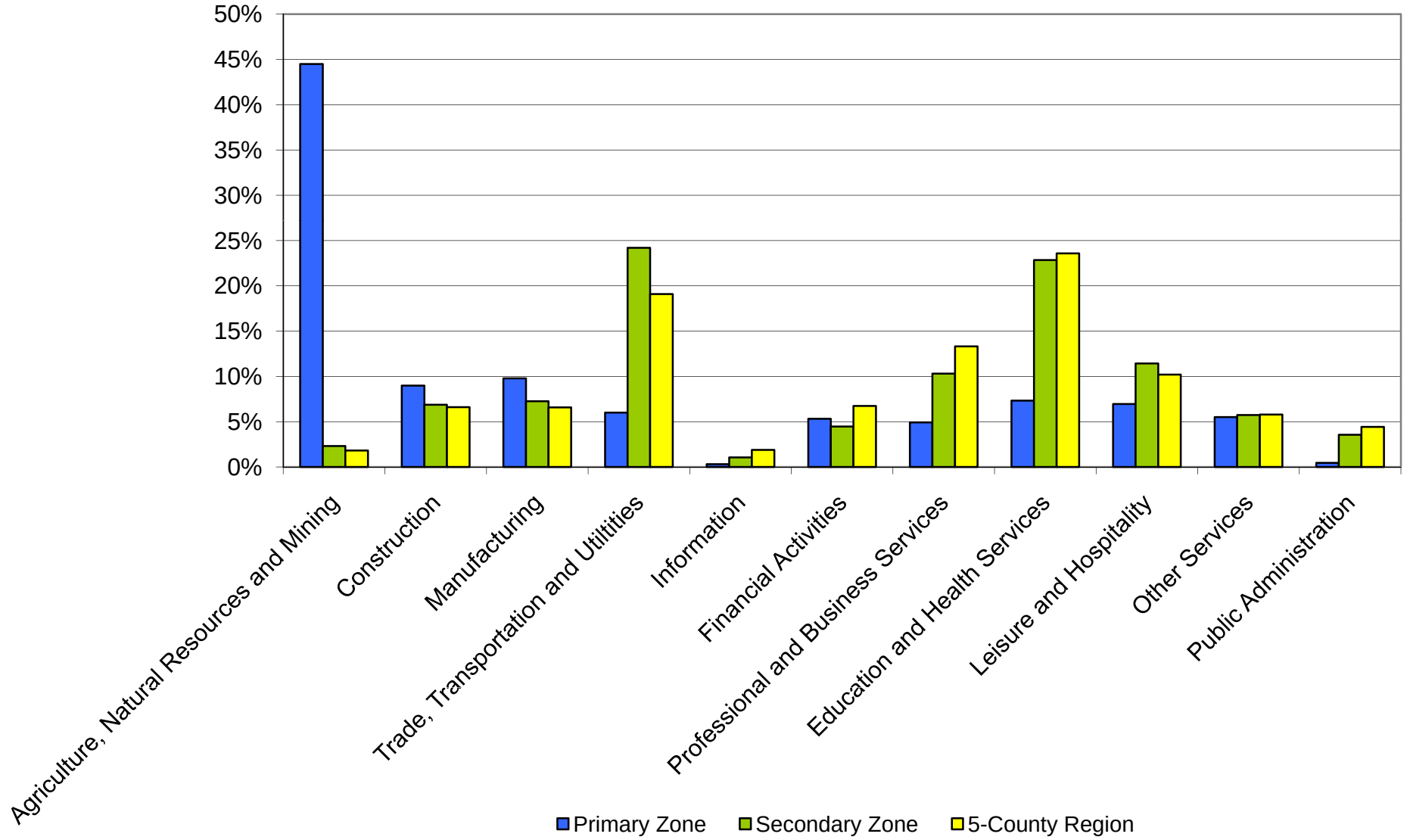
California:
- 25% growth, annual 1.1% growth



Age Distribution in the Delta



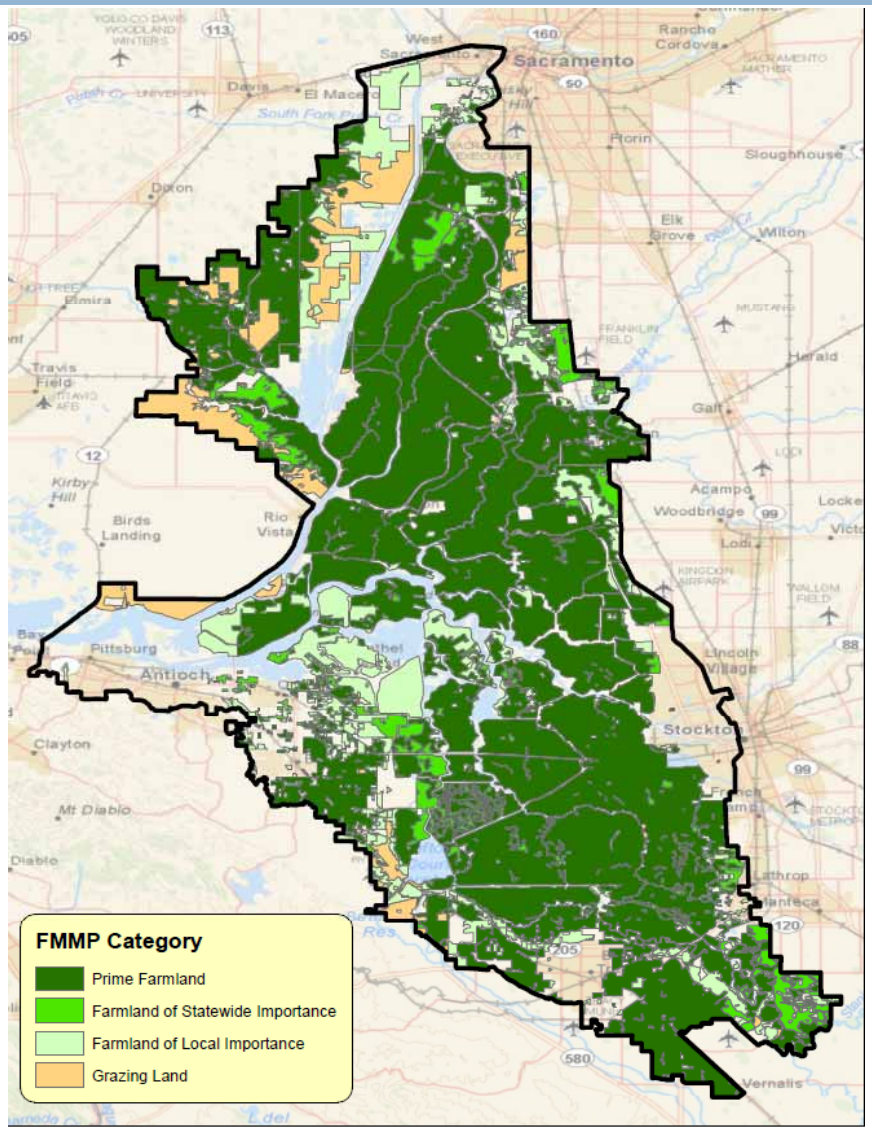
Distribution of Employment by Industry in the Delta



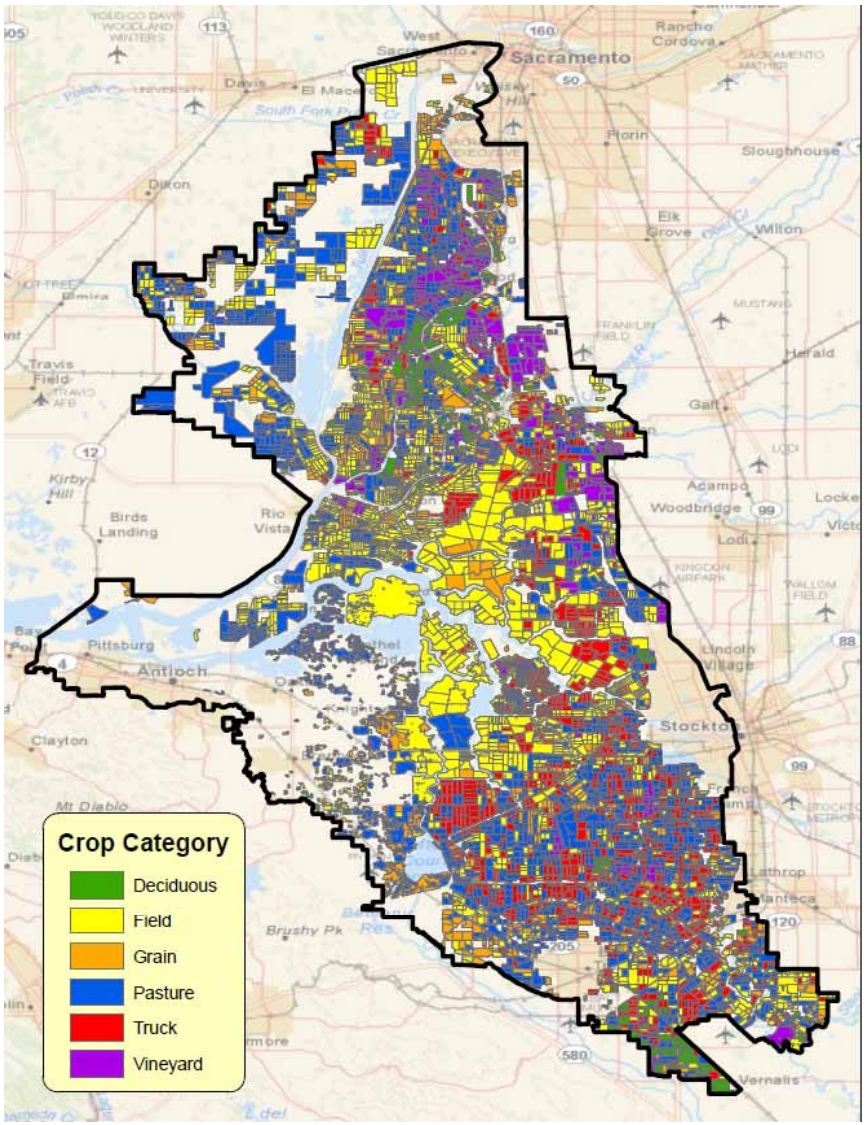
Three Key Economic Contributions of Delta Resources to the Regional Economy

- Agriculture
- Recreation and Tourism
- Infrastructure Services
  - Transportation
  - Energy
  - Water

FMMP Delta Farmland Coverage



Agricultural Land Cover-2010



Delta Agricultural Acreage, 2010

Crop Class	San Joaquin	Sacramento	Yolo[1]	Solano[1]	Contra Costa[2]	Alameda[2]	**TOTAL**
Deciduous	7,127	6,902	816	486	1,426	82	**16,839**
Field	86,673	24,393	8,118	11,663	13,319	5	**144,171**
Grain	19,579	5,518	5,806	8,407	10,056	2,263	**51,629**
Pasture	51,976	14,992	16,034	30,557	15,850	1,008	**130,417**
Truck	37,788	3,482	3,519	1,258	215	4	**46,266**
Vineyard	10,477	8,295	9,194	1,528	1,074	1	**30,569**
Grazing Land[3]	433	2,846	11,499	18,600	2,284	1,991	**37,653**
TOTAL	**214,053**	**66,428**	**54,986**	**72,499**	**44,224**	**5,354**	**457,544**

[1] Pasture acreage adjusted using NASS estimates

[2] NASS data used due to lack of recorded field borders

[3] Grazing land acreage estimated from 2008 FMMP data

Delta Crop Revenues, 2009 (in$1‘000s)

Crop Class	San Joaquin	Sacramento	Yolo	Solano[1]	Contra Costa[2]	Alameda	**TOTAL**
Deciduous	25,118	41,738	3,345	1,347	8,667	498	**80,713**
Field	65,453	17,164	4,860	9,331	19,327	7	**116,142**
Grain	14,539	2,775	1,618	4,615	288	65	**23,900**
Pasture	46,801	5,902	5,753	8,113	3,084	196	**69,849**
Truck	217,491	19,148	11,570	3,389	13,871	258	**265,727**
Vineyard	32,099	28,474	32,718	5,042	6,657	6	**104,996**
Grazing Land[3]	9	57	230	372	46	40	**754**
TOTAL	**401,510**	**115,258**	**60,094**	**32,209**	**51,940**	**1,071**	**662,082**

[1] Crop value calculations use 2010 field borders acreage
[2] Values include all reported county crop report acreage due to lack of reported field borders
[3] Grazing land acreage estimated from 2008 FMMP data and valued at $20 acre.

Top 20 Delta Crops by Value, 2009

	Crop	Value	Acreage
1.	Processing Tomatoes	$117,242,615	38,123
2.	Wine Grapes	$104,990,142	30,148
3.	Corn	$92,975,715	105,362
4.	Alfalfa	$66,027,076	91,978
5.	Asparagus	$50,050,037	7,217
6.	Pear	$36,746,649	5,912
7.	Potato	$28,605,465	3,353
8.	Blueberry	$25,255,917	1,097
9.	Wheat	$17,549,215	34,151
10.	Cherry	$11,490,843	1,855
11.	Almond	$8,776,101	3,121
12.	Walnut	$9,453,874	2,902
13.	Watermelon	$7,953,590	1,717
14.	Pumpkin	$7,926,038	2,104
15.	Cucumber	$7,866,553	3,529
16.	Rice	$6,822,488	4,874
17.	Pepper	$6,247,592	1,289
18.	Apple	$4,455,826	846
19.	Oat	$4,195,540	15,847
20.	Bean, Dried	$3,990,318	5,493

Economic Impact of Delta Agriculture on 5 Delta Counties (not including processing)

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	4,005	$136,405,744	$338,921,900	$753,700,032
Indirect Effect	3,826	$143,749,040	$176,479,000	$348,913,376
Induced Effect	1,419	$64,282,712	$119,500,200	$203,569,088
Total Effect	**9,250**	**$344,437,504**	**$634,901,100**	**$1,306,182,528**

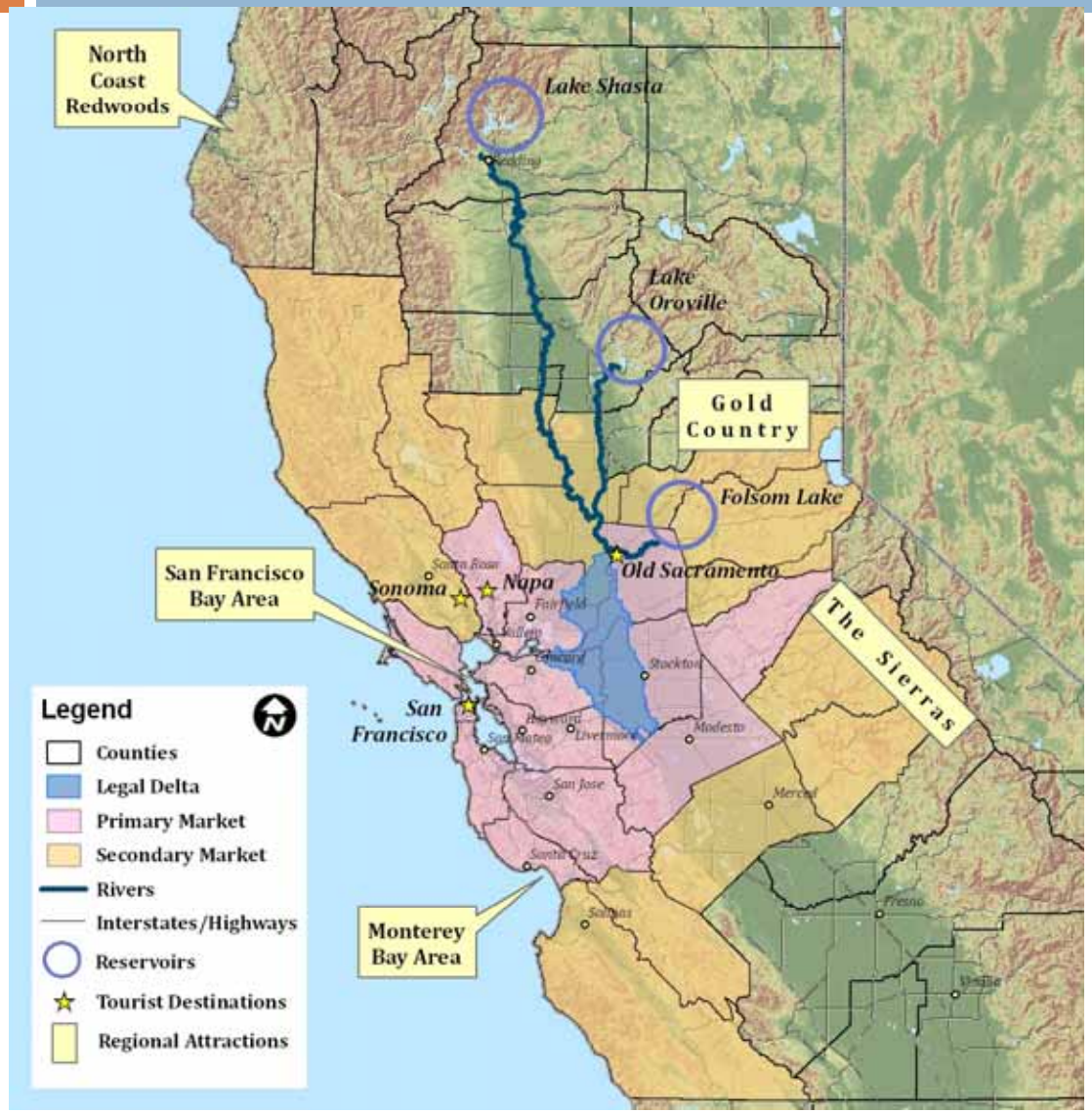
Economic Impact of Delta Agriculture on 5 Delta Counties

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	5,465	$237,501,354	$507,262,180	$1,605,036,480
Indirect Effect	5,685	$269,323,135	$383,743,710	$796,612,528
Induced Effect	2,560	$116,080,527	$215,710,160	$367,500,362
Total Effect	**13,709**	**$622,905,032**	**$1,106,716,150**	**$2,769,149,432**

Economic Impact of Delta Agriculture on California

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	6,872	$316,894,592	$612,684,000	$2,098,397,336
Indirect Effect	10,354	$543,196,268	$793,868,280	$1,652,235,400
Induced Effect	5,590	$280,485,258	$506,257,120	$892,533,692
Total Effect	**22,816**	**$1,140,576,112**	**$1,912,809,300**	**$4,643,166,560**

Delta Market Area and Competing Regions



Visitor Origins (boating):
- Nearly 80% from Primary Market Area (Pink)
- Nearly 10% from Secondary Market Area (tan)
- About 1/8 from elsewhere, SoCal, U.S., international.

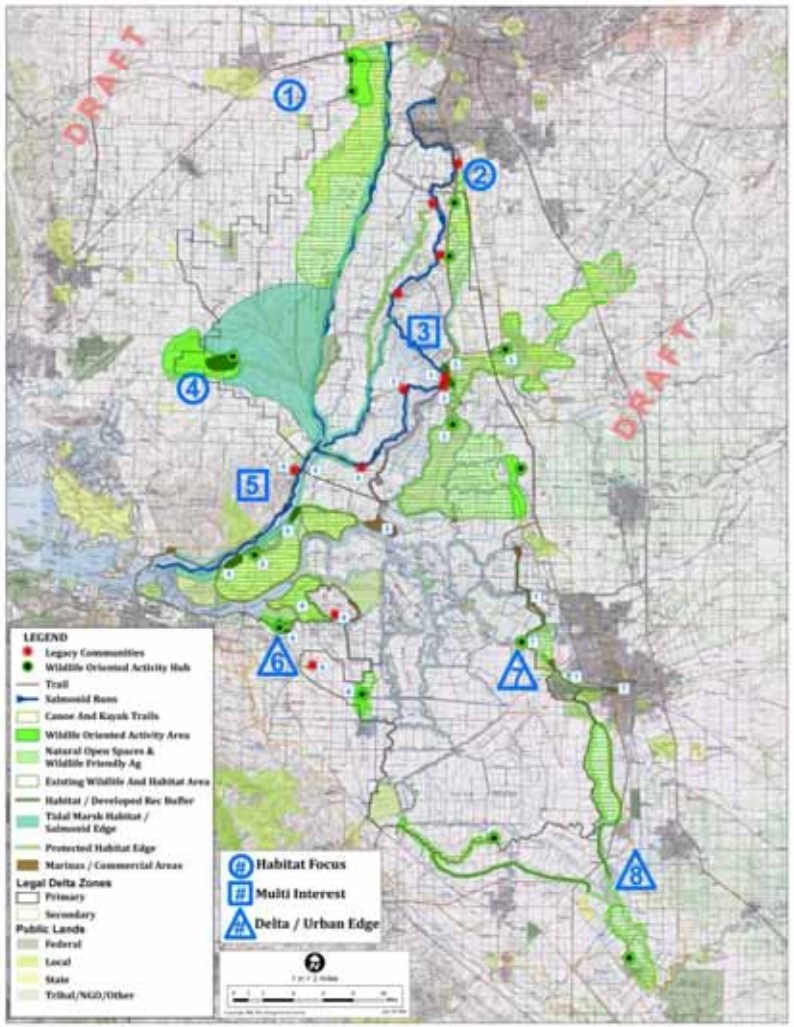
Market Area population
- 12 million in 2010
- 17.7 projected by 2050

Regional competition is tough. Especially for expanding land-based recreation.

Delta Vistation

- 2010 visitation estimates:
  - ~8 million *resource related* (boating, fishing, hunting)
  - ~2 million *right-of-way/ tourism related* (bicycling, driving for pleasure)
  - ~2 million *urban parks/edge related* (golf, picnic, turf sports)
  - ~12 million/year total
- Growth Projection to 2050
  - 3.4 million visitor days, 35%
  - Slightly slower growth than Market Area Population
  - Right of way/tourism related grows faster than resource related.
  - Assumes current level of competitiveness/quality and some facility growth to meet demand.

Recreation Principles and Enhancement Strategy Plan



- Protect agriculture
- Enhance Legacy Communities
- Avoid risk areas
- Protect and grow market share
- Encourage private enterprise
- Establish focal point areas
- Relate to habitat areas
- Establish “facilitator” organization

Economic Impact of Delta Recreation and Tourism on Five Delta Counties

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	1,953.5	$52,553,680	$ 86,648,100	$166,731,376
Indirect Effect	395.2	$20,301,232	$ 34,425,490	$ 64,612,876
Induced Effect	367.2	$16,665,778	$ 30,962,200	$ 52,752,976
Total Effect	2,715.9	$89,520,688	$152,035,800	$284,097,216

Economic Impact of Delta Recreation and Tourism on California

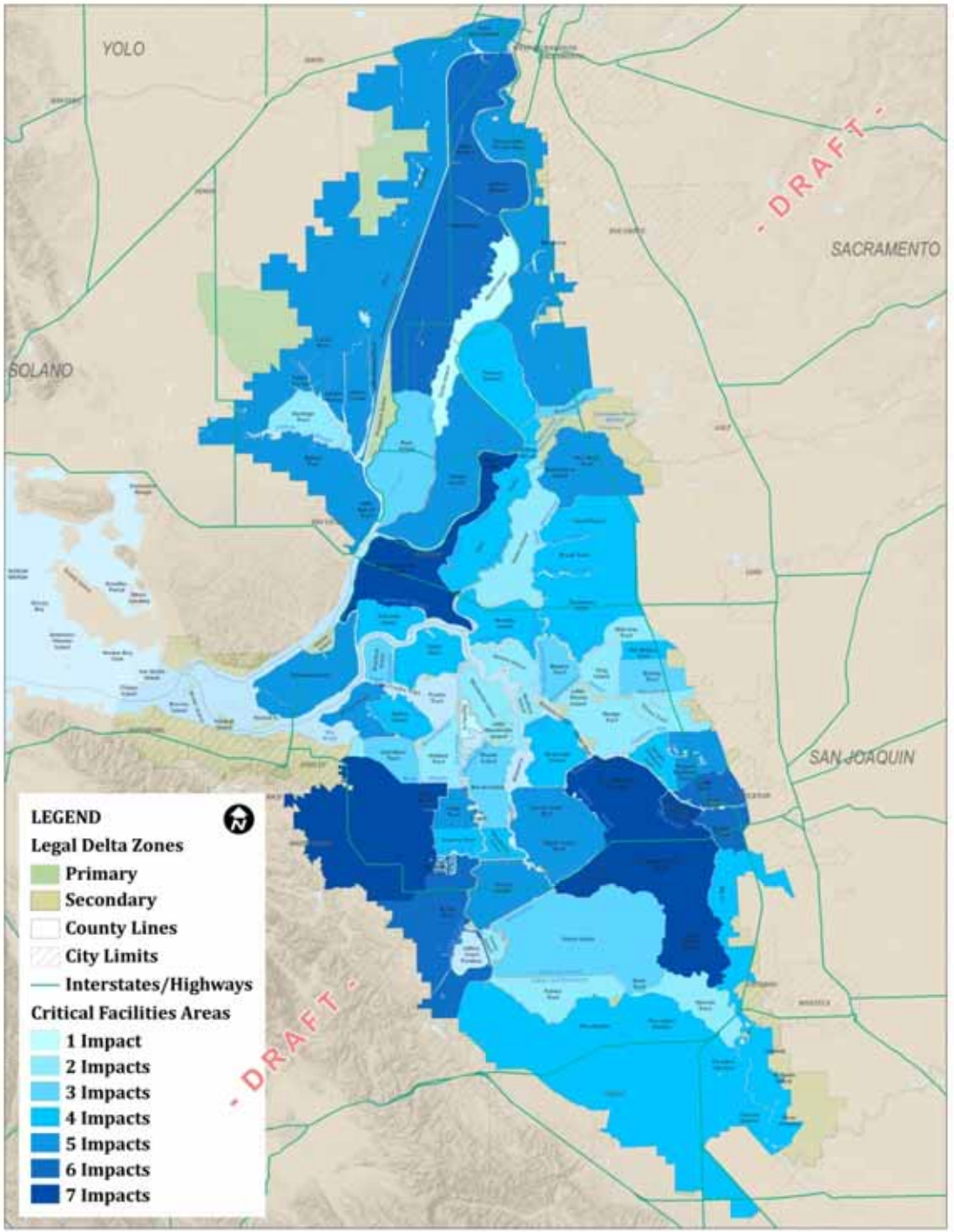
Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	3,143.6	$ 93,460,048	$154,608,500	$289,795,104
Indirect Effect	859.6	$ 50,102,816	$ 85,391,670	$161,296,176
Induced Effect	932.4	$ 46,813,804	$ 84,487,100	$148,968,112
Total Effect	4,935.6	$190,376,672	$324,487,300	$600,059,392

Delta Infrastructure Services

- Energy
  - Natural Gas Production and Storage
  - Electricity Generation and Transmission
- In-Delta Municipal and Industrial Water Supplies
- Transportation: Roads, Rails and Ports

Delta Islands Containing Critical Infrastructure Facilities

- The levee system is critical to protecting the infrastructure network.



Four Key Issues for Economic Sustainability in the Delta

- The Levee System
- Water Quality and Supply
- Present and Future Contribution of Agriculture, Recreation and Tourism
- Sustainable Legacy Communities: Where the Challenges and Strategies Come Together

Key Issue 1: Delta Levees

In the Legal Delta: 976 miles total:

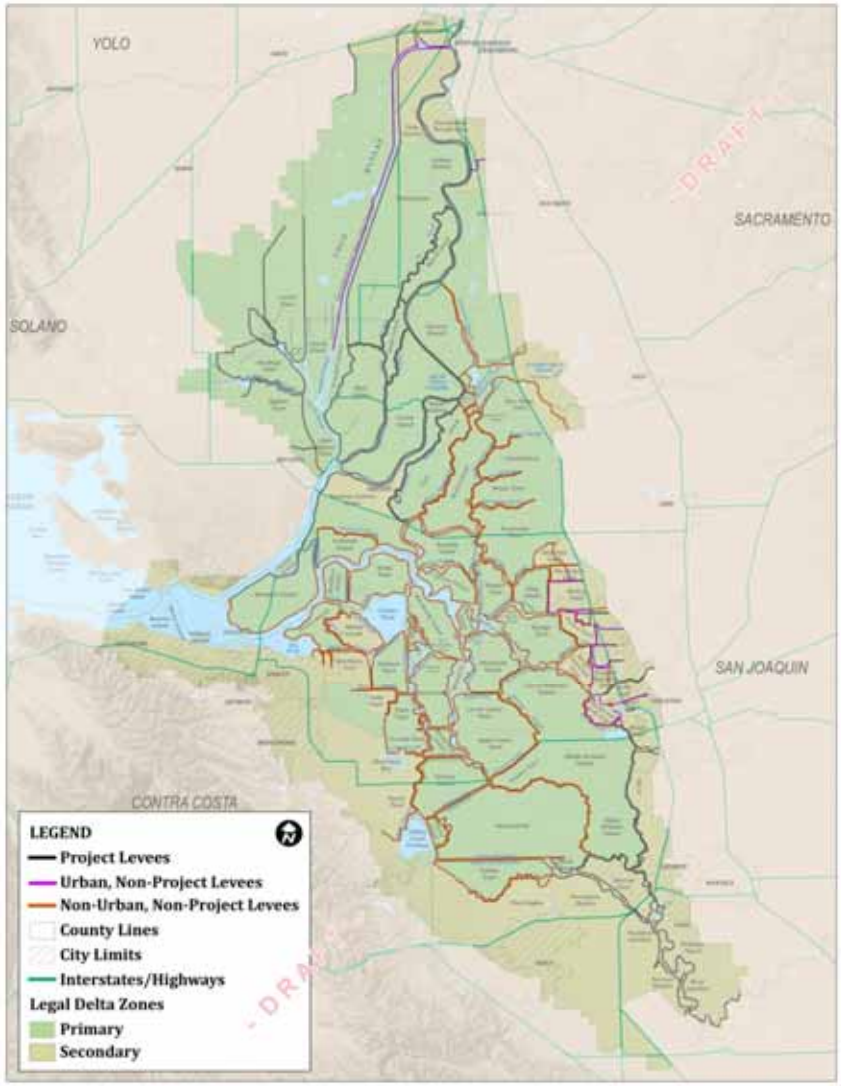
- •380 miles project levees
- •63 miles non-project urban levees
- •533 miles other non-project levees

In the Delta Core: 652 miles total

- •193 miles project levees
- •459 miles other non-project levees
- •Over 100 miles already at or above the Delta-specific PL 84-99 standard

Improving to PL 84-99 standard is $1-2 million per mile.

Levees substantially improved over past 30 years.

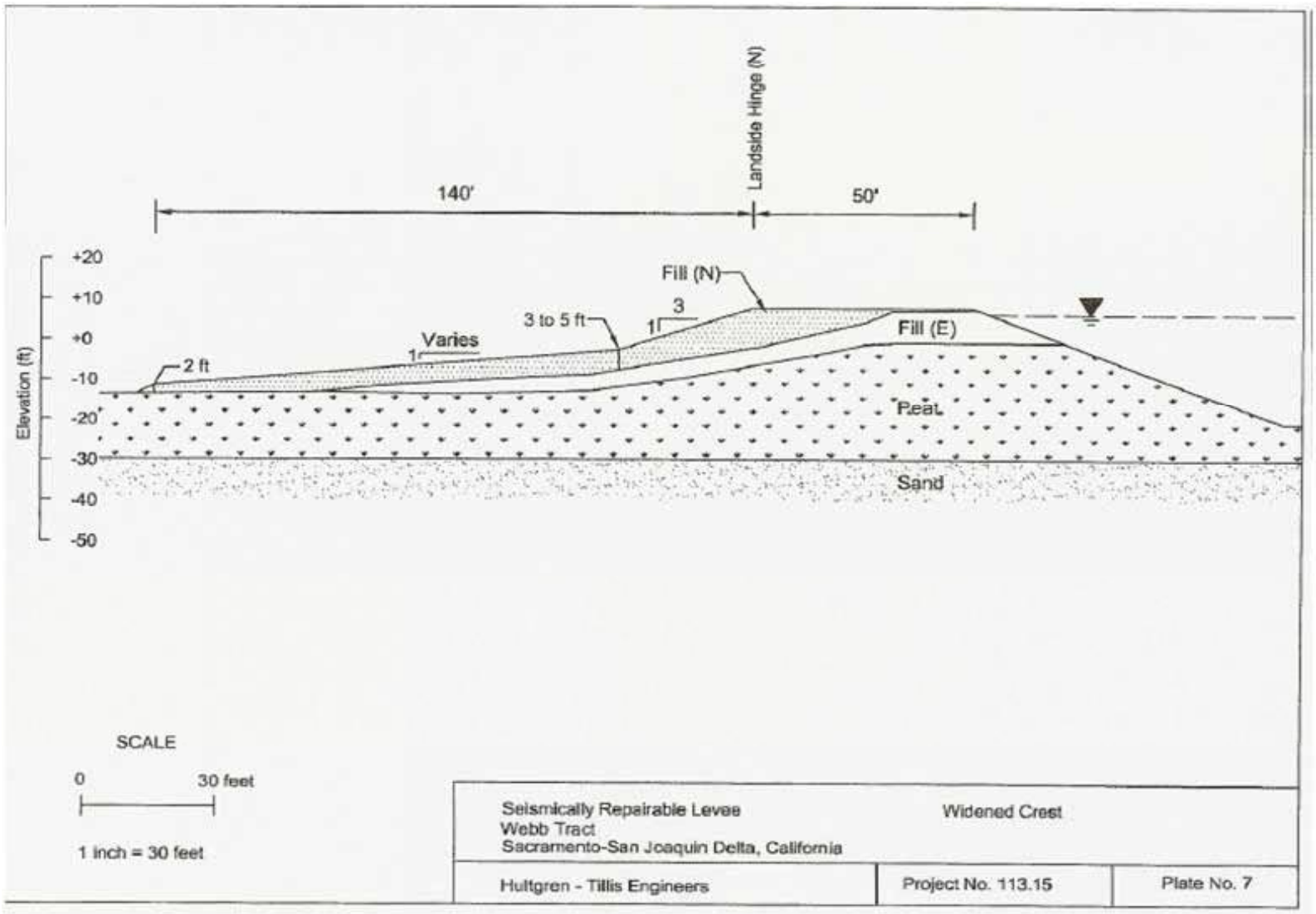


Beyond PL 84-99:

- PL 84-99 levees that do not contain loose saturated sands are already seismically-resistant

- But further widening of most levees in the Delta core is desirable to provide greater seismic resistance, to address possible sea-level rise, and to allow vegetation on the waterside

Example Delta Levee Cross Section



Cost of further levee improvement:

- $2-3million per mile, $1-2 billion total.
- Source of funding: everyone who benefits:

  Landowners, Owners of infrastructure,

  Agencies that convey water thru the Delta
- Plus State government to protect and enhance
- Plus Federal government for heritage, navigation and national security reasons

Key Issue 2: Water Quality and Quantity

- Much like levees, adequate water quality and quantity is a necessary foundation for a sustainable Delta economy.
- Essential to the three critical sectors:
  - Agriculture
  - Recreation
  - Infrastructure Services: especially in-Delta municipal water supplies, and also a constraint on expansion of the Ports.

Key Issue 3: Present and Future Contribution of Agriculture, Recreation and Tourism

- Currently, agriculture in the Delta generates 3 times the direct revenue, and nearly 6 times the economic impact of recreation and tourism.
- Why?
  - Much agriculture revenue is not a final product. In particular, wine grapes and tomatoes have strong regional links to downstream, value-added manufacturing industries.
  - Significant amount of tourism spending is retail with low, local value-added component (e.g. gasoline).
  - Agriculture has stronger regional export orientation.

Can Recreation/Tourism replace the economic impact of agriculture?

- No
- The 35% increase in recreation spending we project over the next 40 years would be equivalent to 5% to 10% of agriculture's current impact.
- Higher figures assume more tourist services are developed to capture and generate more spending per trip.
- Under any scenario, recreation remains secondary to agriculture. However, "economic impact" understates the full value of recreation.

Future of Agriculture and Recreation

- High-value crops generate 80% of the economic impact of agriculture on 20% of the land. Gradual trend towards higher value crops can offset modest losses of agricultural land to urbanization (predict 25,000 acres over 40 years) and environmental restoration.
- Recreation has more growth potential, but requires investment in maintaining and improving the resource and current facilities, as well as new facilities and services.

Key Issue 4: Sustainable Legacy Communities

- Most jobs in and around legacy communities are based in agriculture.
- Local residents have significant share of retirees and commuters, but few suburban services. Commuting in and out.
- The vast majority of the Delta's recreation economy is currently outside the legacy communities.
- Regulatory environment discourages investment, and flood zone designation and Delta plan could add to the burden.

Impact of Water Supply and Ecosystem Restoration Proposals on the Delta Economy

1. Isolated Conveyance: 15,000 cfs tunnel
2. Habitat Proposals
   a. Yolo Bypass Fishery Enhancement
   b. San Joaquin River Floodplain
   c. Tidal Marsh Restoration (up to 65,000 acres)
   d. Natural Communities Protection: Agricultural conservation easements.
3. Open Water Proposal (evaluated 6 islands, not 20+)
4. Increased Regulation by Stewardship Council
5. Delta Vision Economic Development Strategies

Proposals/Impacts	Agriculture	Recreation & Tourism	Infrastructure Services
1. Isolated Conveyance (15,000 cfs tunnel)	1) Water quality losses $20m-$65m annually, but risks could triple 2) Footprint displaces $10m to $15m in annual crops	Potential fishing benefits, but negative effects from North Delta intakes and water quality larger.	1) Water quality negative impacts on M&I supplies 2) Risk of lost support for levee investment
2. Habitat Proposals:			
a) Yolo Bypass Fishery Enhancements	Losses $1m to $5m annually, dependent on flood duration	Potential recreation benefits	Flood control benefits
b) San Joaquin River Floodplain Restoration	1) BDCP proposal - 10,000 acres, up to $20m annual crop loss 2) Paradise cut alternative: 2,000 acres – collaborative plan	Potential recreation benefits	Flood control benefits
c) 65,000 acres of tidal marsh restoration	$18m to $77m annual crop losses, low losses in Suisun Marsh /highest losses in South Delta	South Delta tidal marsh likely negative recreational impacts	1) South Delta & Cache Slough tidal marsh could increase organic carbon in municipal water supplies 2) Suisun Marsh and west Delta restoration could have positive impacts on Delta water quality
d) "Natural Communities" Protection: 32,000 acres of easements & 8,000 acres rangeland conversion	Agricultural losses range from $5m to $43m annually, dependent on whether targeting higher value crops	Wildlife viewing could generate new recreation visits, although spending is low for this activity	Minimal impact
3) Six Island Open Water Scenario	$10m in annual crop losses	Recreation impact very large as located in most popular boating area. Eliminates wind-protected channels and 40% of Delta marinas in immediate area exposed to negative impact	Empire Tract has new Stockton Water intake. Organic carbon impact to Stockton water supply, and silting of shipping channel.
4) DSC Covered Actions Regulation	Potentially large impacts on all sectors. Deter investments with increased cost and uncertainty.		
5) Delta Vision Economic Development Strategies	National Heritage Area designation could be useful (DPC feasibility study in progress). Delta Investment Fund is useful, but prospects for funding are very uncertain. Other ideas have limited potential and feasibility.		

Recommended Actions for Economic Sustainability

- **Improve core, non-project Delta levees to the PL 84-99 standard by 2015 using the existing Delta levee subventions and special project programs.**
- **Improve many Delta Levees beyond the PL 84-99 that addresses earthquake and sea-level rise risks, improve flood fighting and emergency response, and allow for vegetation on the water side of levees to improve habitat.**
- **Transfer responsibility for coordination of regional emergency management and response and recovery to a regional agency.**
- **Maintain or enhance the value of Delta agriculture.**

Recommended Actions for Economic Sustainability (Continued)

- **Initiate a process to streamline local, State, and federal regulations and permitting.**
- **The Delta Stewardship Council should not increase regulation of "covered actions" for industries it is trying to enhance in the Delta.**
- **An existing agency should be designated to manage and implement economic sustainability efforts in the Delta.**
- **Create a Delta and/or Legacy Communities "brand" to enhance awareness.**
- **Designate the Delta as a National Heritage Area (NHA).**

Recommended Actions for Economic Sustainability (Continued)

- **The Delta Investment Fund should be established and used strategically to implement the recreation and tourism enhancement strategies.**
- **Develop measurable targets for recreation and tourism and agricultural sustainability, and track performance over time.**
- **Create flood bypass and habitat improvements in the Yolo bypass, McCormack-Williamson Tract, and the lower San Joaquin River near Paradise Cut.**
- **Improve water quality and freshwater outflow in the Delta.**

Actions With Large Conflicts with Economic Sustainability

- **A 15,000 cubic feet per second isolated water conveyance facility is inconsistent with economic sustainability.**
- **Tidal marsh in the south Delta is inconsistent with economic sustainability**.
- **A large area of open water in the Central Delta caused by the permanent flooding of several contiguous islands is inconsistent with economic sustainability**.

- There are other ways for the state to address the co-equal goals at lower cost to the Delta than these three measures. All actions taken to further the co-equal goals must mitigate local economic impacts whenever possible.